PIRT Summary to the 2001 Legislature

Pesticide Incident Reporting and Tracking Review Panel

Report on 1999 Incident Data

Environmental Health Programs

February 2001

Summary to the Legislature

Pesticide Incident Reporting and Tracking (PIRT) Review Panel

December 2000
A report submitted by the **Department of Health** to the legislature as required by Chapter 380, Laws of 1989, and RCW 70.104.

Lynden Baum, Manager
Pesticide & Surveillance Section
PO Box 47825
Olympia, WA 98504-7825

Toll free: 1-888-586-9427
Fax: (360) 236-2257
Email: lynden.baum@doh.wa.gov
Internet: http://www.doh.wa.gov

PIRT Panel Representatives

Maryanne Guichard, Chair	Department of Health
Jane C. Lee, Coordinator	Department of Health
Ann Wick	Department of Agriculture
John Ridgway	Department of Ecology
John Carlton	Department of Fish & Wildlife
Lynden Baum	Department of Health
Arlene Stebbins	Department of Labor & Industries
Vacant	Department of Natural Resources
Alice C. Larson, Ph.D.	General Public
Lucio G. Costa, Ph.D.	Practicing Toxicologist
Matthew Keifer, M.D.	University of Washington
William O. Robertson, M.D.	Washington Poison Center
Allan Felsot, Ph.D.	Washington State University

Contents

1 ..... Data Summary & Introduction

2 ..... Department of Agriculture

4 ..... Department of Health

5 ..... Department of Labor & Industries

7 ..... Washington Poison Center

Data Summary

Four state agencies Agriculture (WSDA), Health (DOH), Ecology, and Labor and Industries (L&I) and the Washington Poison Center (WPC) respond to concerns involving pesticides. In 1999, WSDA investigated 192 pesticide complaints, DOH responded to 271 incidents involving 332 individuals, L&I made 37 inspections which referenced pesticide issues, and received 183 claims involving pesticide exposures and the WPC registered 2,523 pesticide related calls.

Table 1 lists the number of reported incidents, calls, complaints or investigations each agency responded to concerning pesticide issues from 1992-1999. In addition, agency staff responds to many other inquiries and consultations about pesticide issues which are not included in the total numbers. Because of specific statutory responsibilities, incidents may be investigated by more than one agency.

In 1999, all agencies (except L&I WISHA inspections) experienced a decrease in numbers of complaints or calls from prior years. Similar findings were reported from California (agricultural field workers) and Oregon. The reasons for this decrease in reported incidents are unclear. However, reasons for the decline may include the public is more informed of pesticide exposure risks, removal from the market of acutely toxic pesticides, increased use of Integrated Pest Management and increased educational outreach to users of pesticides.

Analysis of 1999 incident data suggests the following areas as a focus for educational efforts: drift and overspray, pesticide handlers and applicators, tree fruit workers, respiratory and personnel protection equipment measures.

Table 1 Pesticide Incidents Reported by Agency and WPC 1992-1999

	1992	1993	1994	1995	1996	1997	1998	1999
WSDA	558	400	383	259	251	204	204	192
DOH Incidents	287	525	589	399	402	365	391	271
Individual Cases	365	696	691	503	504	441	476	332
L&I Inspections	9	17	14	24	39	20	36	37
Claims	229	290	241	245	222	235	269	183
WPC	5,043	4,644	3,189	3,375	3,092	3,227	3,002	2,523

Introduction

The PIRT Panel is directed by statute (RCW 70.104.090) and has among its responsibilities the identification of inadequacies in pesticide regulations that result in insufficient protection of public health, and the approval of an annual report summarizing pesticide incidents. This report evaluates 1999 pesticide incident data from three state agencies: Agriculture, Health, and Labor and Industries, and the Washington Poison Center.

The Pesticide Incident Reporting and Tracking (PIRT) Review Panel has summarized data from the 1999 reported pesticide incidents into this document for the 2001 Washington Legislature. A detailed annual report will be available in mid 2001. The PIRT Panel consists of the Washington State Departments of Agriculture, Ecology, Health, Labor and Industries, Natural Resources (DNR), Fish and Wildlife (WDFW), as well as the University of Washington (UW), Washington State University (WSU), Washington Poison Center (WPC), a practicing toxicologist, and a member of the public.

Department of Agriculture

The Washington State Department of Agriculture (WSDA) investigated all reported complaints made to it involving pesticide use, sales, distribution, applicator licensing, and building structure inspections for Wood Destroying Organisms (WDO). During 1999, WSDA investigated 192 complaints (Table 2). After investigation, it was found 162 (84%) involved pesticide applications and 30 (16%) were complaints unrelated to pesticide application such as licensing.

Table 2 WSDA Complaints And Violations

Year	Total Complaints	Violations Found
1992	558	264 (47%)
1993	400	166 (42%)
1994	383	138 (36%)
1995	259	87 (34%)
1996	251	104 (41%)
1997	204	110 (54%)
1998	204	116 (57%)
1999	192	101 (53%)

WSDA is required to respond to cases of human exposure within 24 hours of receipt. Investigation begins on other cases as soon as resources allow, generally within 2-3 days. In 1999, WSDA responded to ninety-four percent of all complaints within 24 hours.

Location

One hundred fifty-one (79%) of the 1999 complaints occurred in eastern Washington; 41 (21%) were from western Washington. The ten counties reporting the most complaints were: Grant 29, Yakima 26, Spokane 18, Benton 17, King 14, Chelan 9, Pierce 8, Walla Walla 8, Franklin 7, and Okanogan 7.

Type of Activity Involved in Complaints

Table 3 shows the type of activities of the complaints resulting in violations from 1992 to 1999.

Table 3 1992-1999 WSDA Violations by Type of Activity

Activity	1992	1993	1994	1995	1996	1997	1998	1999
Agricultural	158	75	46	26	29	40	54	50
Commercial/Industrial	32	60	44	24	27	22	22	19
PCO/WDO*	*	*	28	28	20	24	8	11
Residential (non commercial)	9	15	12	3	9	8	7	10
Right-of Way**	**	**	**	**	3	10	12	1
Other (licenses, records, etc.)	65	16	8	6	16	6	13	10
Total Violations	**264**	**166**	**138**	**87**	**104**	**110**	**116**	**101**

** Before 1994, PCO cases were classified as other, and in 1996, Wood Destroying Organisms were included with Pest Control Operators.*
*** Prior to 1996, right-of-ways were included with commercial/industrial.*

Nature of Pesticide Complaint

Drift exposure continues to be an area of concern with complaints resulting from overspray or misapplication. In 1999, 64 complaints involved drift, followed by concern with human exposure 31, misuse 20, direct exposure 19, bee kills 14, Pest Control Operator/ Wood Destroying Organism (PCO/WDO) 11, records/license 5, disposal 5, and other 23. When violations are evaluated by type of license involved, commercial applicators accounted for 50 of the 101 violations, followed by private applicators 25, public operators 6, commercial consultants 6, unlicensed individuals 13, and others 4. More than one license may be involved in an investigation. This is consistent with prior years.

Severity of Reported Complaints

In 1996, WSDA began rating severity of complaints. For the fourth year (1999), the majority (78%) of complaints investigated by WSDA had a low severity rating scale of two or less. (Table 4)

Table 4 Severity Rating of WSDA Complaint Cases 1996-1999

Rating	1996	1997	1998	1999	Criteria
0	64	28	31	13	Problem not due to pesticides and/or no cause determined; PCO/WDO inspection with no violations.
1	71	67	62	65	Pesticides involved, no residue, no symptoms occurred; possible pesticide problem, not substantiated; issues involving records, registration, posting, notification (multiple chemical sensitivity) or licensing; DOH classified "unlikely" or "unknown."
2	79	64	70	72	Residue found, no health symptoms (human, animal); health symptoms not verified; multiple minor violations; off label use; worker protection violations; PPE violations with no health symptoms; plants with temporary or superficial damage only; PCO/WDO faulty inspections; DOH classified "possible."
3	22	30	31	24	Minor short-term health symptoms (rash, eye irritation, shortness of breath, dizzy, nausea, vomiting); bee kills less than 25 hives; minor fish kills; economic plant damage under $1000; evidence of deliberate economic fraud; DOH classified "probable."
4	11	8	9	15	Short-term veterinary or hospital care; bee kills over 25 hives; significant fish kills; significant economic plant damage over $1000; environmental damage; illness involving children; DOH classified "probable."
5	4	7	1	3	Veterinary or hospital care, overnight or longer; physician diagnosed children's illness as caused by pesticides; animal death due to pesticides; significant environmental damage; DOH classified "definite."
6	0	0	0	0	Human death due to pesticides.
Total	251	204	204	192	

Type of Pesticide Involved

In 1999, herbicides were involved in 69 complaints and insecticides in 67 complaints. Other products such as fungicides, disinfectants and rodenticides were involved less frequently. Many cases involve tank mixes of several products. Pesticides most frequently reported in complaints were 2,4-D, Glyphosate, Azinphos-methyl and Chlorpyrifos and are commonly used products.

Enforcement actions

At the time of publication, the following corrective actions had been taken: Notice of Correction 64, Notice of Intent/Fines/License Suspensions 20, Advisory Letter 10, Warning Letter 5, Referred to Other Agency 2, and No Action Indicated 91.

WSDA Summary

Complaints reported in 1999 were similar to those reported in prior years. Overall, the number (192) of complaints reported in 1999 decreased from 204 reported in 1998, 204 in 1997 and 251 in 1996. It is interesting to observe that the decrease from 1998 to 1999 all came from western Washington. It is unclear why reports in western Washington decreased but may relate to usage, fewer right-of-way investigations or the closure of the WSDA office in Mt. Vernon.

Department of Health

DOH is required to investigate all reported suspected pesticide poisonings. In 1999, DOH investigated 271 reported incidents of suspected acute pesticide related illnesses involving 332 individuals (cases). (An incident may involve more than one person/case). Figure 1.

Reported Incidents and Cases 1992 - 1999

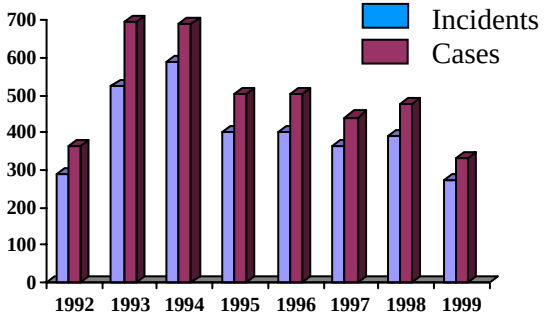

Figure 1

DOH responded to incidents within 24 hours 75 percent of the time and within 48 hours 95 percent of the time. Reports of suspected pesticide related illness were received from L&I claims (58%), WPC (26%), WSDA (9%), Health Care Providers (2%) and others (5%).

Classification of Cases

DOH classifies each case based on its determination of how likely the symptoms were related to pesticide exposure. DOH classified 140 (42%) of the 332 total cases as having signs and/or symptoms definitely, probably, or possibly, (DPP) related to pesticide exposure. The 191 other cases were classified unlikely 66, unrelated 35, asymptomatic 27, unknown 62, and indirect 2. Of the 140 DPP cases related to pesticide exposure, 72 (51%) were associated with non-agricultural applications of which 30 were associated with home/apartment use. Sixty-eight DPP cases involved agricultural pesticide applications.

Severity

For the fifth year, only a small percent (2%) of individuals had severe symptoms. These four individuals, involved in separate incidents, required hospitalization, but DOH upon investigation and review of medical records classified the cases as probable, possible, of unknown etiology and unrelated to pesticides.

Table 5 Severity of reported pesticide cases by DOH classification 1999

Findings	Severity*				
	01	02	03	04	Total
Definite	0	23	3	0	26
Probable	0	50	2	1	53
Possible	0	51	9	1	61
Unlikely	0	55	10	1	66
Unrelated	19	12	3	1	35
Asymptomatic	27	0	0	0	27
Indirect	0	1	1	0	2
Unknown	0	55	7	0	62
	46	247	35	4	332

*Definitions for the severity classification are in the 1999 PIRT Annual Report available at www/doh.wa.gov. 01/ no symptoms, 02/ mild, 03/ moderate, 04/ severe I, (no severity II or deaths were reported).

Table 6 DOH Comparison of Severity 1995-1999
Total cases and DPP (definite, probable and possible cases)

Severity Rating	1995		1996		1997		1998		1999		Total	
	Total	DPP	Total	DPP	Total	DPP	Total	DPP	Total	DPP	Total	DPP
01 (no symptoms)	110	0	103	0	77	0	82	0	46	0	**418**	**0**
02 (mild)	223	122	236	163	301	173	309	167	247	124	**1356**	**749**
03 (moderate)	151	86	112	67	55	38	73	37	35	14	**426**	**242**
04 (severe I)	17	6	11	7	7	3	9	8	4	2	**48**	**26**
05 (severe II)	1	1	2	0	1	0	3	2	0	0	**7**	**3**
06 (death)	0		0	0	0	0	0	0	0	0	**0**	**0**
Total	**502**	**215**	**504**	**237**	**441**	**214**	**476**	**214**	**332**	**140**	**2,255**	**1,020**

Occupational Cases of Pesticide Related Illness

Of the 332 total cases, (people involved in incidents), 224 occurred while on-the-job. Of these, 92 were classified as definite, probable or possible (DPP) pesticide related cases. This compares with 319 occupational reports in 1998, with 144 classified as DPP cases.

Forty-eight of the 92 occupational DPP cases were agricultural and 44 were non-agricultural workers. This is a 44% decrease in agricultural DPP cases reported from last year.

Thirty-one (65%) of the 48 occupational agricultural DPP cases occurred from direct handling of pesticides (e.g., mixers, loaders, applicators), and pesticide drift accounted for three cases. Eleven received exposure from residues on foliage and three through accidents (e.g., hose ruptures).

Twenty-nine (60%) of the 48 agricultural occupational DPP cases occurred in the tree fruit industry, especially apples. Eleven involved field crops. The remaining eight cases occurred in occupations such as nurseries/greenhouses, vegetables, and livestock.

Of the forty-four non-agricultural occupational DPP cases 22 (50%) occurred in buildings, offices or schools, and 13 of these were related to residues in structures from commercial applications.

Non-Occupational cases of Pesticide Related Illness

There were 28 cases (DPP) of non-occupational and non-agricultural pesticide illness. Twenty-two (79%) were associated with homeowner use and 13 of these were home hand applications by non licensed individuals. Twenty DPP cases were non-occupational but attributed to agricultural applications. Seventeen were caused by pesticide drift.

Incidents Involving Children

Forty-four cases were 18 years of age and younger, accounting for thirteen percent of the 332 reported cases. Of the 44 cases involving 33 different incidents, 22 (50%) were non-agricultural and 22 occurred in agriculture. Fourteen (32%) of the 44 cases were related (definitely, probably or possibly) to pesticide exposure. Of these, two were under the age of six. Five were ages 6-10, and seven were ages 11-18.

DOH Summary

In 1999, pesticide related incidents reported to DOH decreased by 31% from 391 in 1998 to 271 in 1999. DOH found 42% of the total 332 cases investigated as having signs and/or symptoms definitely, probably or possibly related to pesticide exposure. Occupational exposures accounted for 224 cases, a 29% decrease from 1998. However, 65% of occupational agricultural DPP cases occurred from direct handling of pesticides by mixers, loaders, and applicators. Forty-four cases (13%) involved individuals 18 years of age and younger.

Department of Labor and Industries (L&I)

L&I responds to concerns from workers about pesticide exposure through two divisions: the Washington Industrial Safety and Health Act (WISHA) Services Division, and the Insurance Services Division, (Claims Administration Program). In 1999, L&I WISHA Services Division identified 37 pesticide related health and safety workplace inspections. The Insurance Services Division, Claims Administration Program received 183 claims relating to pesticide illness and these were all forwarded to DOH for investigation.

Health and Safety Investigations

L&I WISHA Services Division inspections are initiated by WISHA targeting methods, complaints, referrals or observations as inspectors travel through their area. The targeting method initiated 16 inspections. The remaining inspections were responses to a complaint 11, referral 9 (usually from another agency) and one from inspector observation. Twenty-seven pesticide related inspections were conducted in Eastern Washington and 10 in Western Washington. Inspections occurred in both agricultural and non-agricultural settings. Fruit orchards (16) were the most frequent type of business inspected, followed by five inspections each for nurseries and vegetable crops (potatoes, asparagus, mushrooms), two for berries and one vineyard. Hay fumigation was involved in two inspections. Structural pesticide businesses were involved in two inspections. The rest had a single inspection for its business type (bulb warehouse, hops, golf course, and an aerial applicator).

WISHA has two violation categories: serious and general. Serious implies a potential for a life threatening injury or illness or a major injury or illness. General implies minor injury or illness or indicates that program errors were identified that may lead to a minor injury or illness. In 1999, the inspections resulted in the following violation citations: general 18, serious 10, both serious and general 2, and no violation 7.

A total of twelve inspections had serious pesticide related violations. Of these, six inspections had multiple pesticide related serious violations and six had just one serious pesticide related violation. Total pesticide related penalties were $13,560 (range $160 – $2,980). Items found in the serious violations were errors in respiratory protection (4 sites), training (3 sites), personal protective equipment (4 sites), eyewash and washing capabilities (4 sites), hazard communication and labeling (2 sites), and lack of drinking water (1 site). One inspection had a repeat serious violation and was fined $4,000. This is not included in the monetary penalty total.

The general violations covered a large spectrum and included respiratory protection (2 sites), personal protective equipment, re-entry interval, and lacking eyewash (1site for each), hazard communication (2 sites). The remaining general violations were lack of or incorrect spray records (5 sites), no posting of information (3 sites), no notification of an illness incident (2 sites), not removing signs (1 site), and no first aid card (1 site).

L&I Claims Insurance Services Division, Claims Administration Program

The Insurance Services Division, Claims Administration Program, processes worker

claims initiated by on-the-job injuries and illnesses including claims involving pesticides. In addition, pesticide claims are referred to DOH for further investigation. In 1999, DOH investigated 183 claims from L&I because of health concerns. This compares with 269 referred to DOH in 1998 and 235 in 1997. In 1999, DOH classified 130 (70%) of these claimants to be exposed while working in agriculture and 53 (29%) in a non-agricultural setting. Forty-seven percent (86) of the claims, involved workers in the fruit industry and thirteen percent (24) in field crops.

L&I Summary

In 1999, L&I reported approximately the same number of WISHA investigations involving pesticide worker issues as in previous years: 37 in 1999, and 36 in 1998. Insecticides were the pesticides most frequently identified. Over two thirds of these inspections documented one or more violations. The year saw a 32% reduction in pesticide related workers' insurance claims referred to DOH for further investigation.

Washington Poison Center

In 1999, the Washington Poison Center (WPC) received 133,240 calls. Of these, 2,523 were pesticide related calls and account for two percent of total calls received statewide by WPC (Table 7). From 1990 to 1999 there has been a fifty-percent reduction in pesticide related calls to the Poison Center. Many factors including increased education and awareness of risks, and elimination of more toxic pesticides, appear to explain this decrease.

Table 7 WPC Pesticide Calls 1990-1999

Pesticide	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Fungicide	86	141	124	117	96	104	120	88	72	61
Herbicide	650	608	637	573	512	531	441	482	485	425
Insecticide	3,633	3,090	3,460	3,158	2,040	2,173	1,992	2,103	1,886	1,562
Moth Repellent	180	187	158	120	68	89	66	77	65	76
Rodenticide	682	655	664	676	473	478	473	477	478	399
Total Pesticide	**5,231**	**4,681**	**5,043**	**4,644**	**3,189**	**3,375**	**3,092**	**3,227**	**3,002**	**2,523**
% of Total WPC Calls	**4.1%**	**3.7%**	**3.9%**	**3.1%**	**2%**	**2%**	**2%**	**2%**	**2%**	**2%**
Total WPC Calls	**127,575**	**126,550**	**129,350**	**128,368**	**131,494**	**135,621**	**135,621**	**132,649**	**134,605**	**133,240**

In Washington State, pesticide poisonings are a reportable condition (WAC 246-100-217), and health care providers can report to DOH or through the WPC. All calls from health care providers are forwarded to DOH for investigation along with all calls referred to a health care provider, or if a health care provider required case management assistance. In 1999, WPC referred 149 calls to DOH for investigation because of clinical signs and symptoms of pesticide illness. Of these 78 did not meet DOH criteria for investigation, which includes exposure more than 3 months ago, no exposure-health effect relationship present, or insufficient information to substantiate the pesticide exposure. DOH classified the remaining 71 incidents involving 83 individuals: 12 definite, 12 probable, 13 possible, 23 unlikely, 2 unrelated, 14 unknown, 6 asymptomatic (pesticide exposure was confirmed but the individual exhibited no symptoms) and 1 indirect. The majority of these cases had mild or no symptoms 69 (83%), 10 had moderate symptoms (12%), and 4 had severe symptoms (3%). As in previous years, the vast majority (93%) of pesticide related calls to WPC involved accidental exposure.

Forty-one percent of the pesticide calls to WPC involved children less than six years of age. Table 8 illustrates WPC calls by pesticide type for the different age groups. This distribution is consistent with prior years. Insecticides continued to be the type of pesticide most frequently involved (62%).

Table 8 1999 WPC Pesticide Calls by Age

Pesticide Type	Less than 6 years old	6-19 years old	Total Human Exposure Calls
Fungicides	16	9	**61**
Herbicides	122	65	**425**
Insecticides	566	266	**1,562**
Moth Repellents	33	11	**76**
Rodenticides	304	33	**399**
Total*	**1,041**	**384**	**2,523**

WPC Summary

In 1999, the number of pesticide related calls to the Washington Poison Center decreased by 16 percent from the previous year. Calls involving insecticides and rodenticides decreased more than other types of pesticide, possibly because of the reduction in use of more toxic products. Approximately half (56%) of the calls involve children less than 19 years of age with 41 percent being under the age of six.